A.D. 1857 . . . . . N° 1775.

SPECIFICATION

OF

EDOUARD BESNIER DE LA PONTONERIE.

APPARATUS FOR CONSUMING SMOKE.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
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1857.

A.D. 1857 . . . . . N° 1775.

Apparatus for Consuming Smoke.

LETTERS PATENT to Edouard Besnier de la Pontonerie, of Paris, in the Empire of France, Merchant, for the Invention of "IMPROVEMENTS IN APPARATUS FOR CONSUMING SMOKE."

Sealed the 18th December 1857, and dated the 24th June 1857.

PROVISIONAL SPECIFICATION left by the said Edouard Besnier de la Pontonerie at the Office of the Commissioners of Patents, with his Petition, on the 24th June 1857.

I, EDOUARD BESNIER DE LA PONTONERIE, of Paris, in the Empire of France, Merchant, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS FOR CONSUMING SMOKE," to be as follows:—

The improvements relate, when using jets of superheated steam to act upon the products of combustion to facilitate the combustion of such products, to means for giving increased heat to such superheated steam. For this purpose, the pipe which conducts the steam from the boiler or other steam generator to the fire bridge, or other suitable place for mixing with the products of combustion, in passing along the back or sides of the furnace, or otherwise that part of the furnace where there is most heat to receive increased heat from the fire, is enclosed in fire clay or porcelain, or such like earthy matter, as a means of better and more economically absorbing and giving off to the steam in such pipe or pipes the heat of the fire, as well as of protecting

the pipe from injury when not filled with steam; and I arrange the jets so that the steam may act upon the flame produced just above the fuel, and in a direction to meet the flame in its passage to the flue.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Edouard Besnier de la Pontonerie in the Great Seal Patent Office on the 19th December 1857.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EDOUARD BESNIER DE LA PONTONERIE, of Paris, in the Empire of France, Merchant, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-fourth day of June, in the year of our Lord One thousand eight hundred and fifty-seven, in the twenty-first year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Edouard Besnier de la Pontonerie, Her special licence that I, the said Edouard Besnier de la Pontonerie, my executors, administrators, and assigns, or such others as I, the said Edouard Besnier de la Pontonerie, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN APPARATUS FOR CONSUMING SMOKE," upon the condition (amongst others) that I, the said Edouard Besnier de la Pontonerie, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Edouard Besnier de la Pontonerie, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

The improvements relate, when using jets of superheated steam to act upon the products of combustion to facilitate the combustion of such products, to means for giving increased heat to such superheated steam. For this purpose, the pipe which conducts the steam from the boiler or other steam generator

to the fire bridge, or other suitable place for mixing with the products of combustion, in passing along the back or sides of the furnace, or otherwise that part of the furnace where there is most heat to receive increased heat from the fire, is enclosed in fire clay or porcelain, or such like earthy matter, as a means of better and more economically absorbing and giving off to the steam in such pipe or pipes the heat of the fire, as well as of protecting the pipe from injury when not filled with steam; and I arrange the jets so that the steam may act upon the flame produced just above the fuel, and in a direction to meet the flame in its passage to the flue.

But that the nature of my said Invention, and in what manner I carry the same into effect, may be fully understood, I will proceed to describe the Drawing annexed:—

Description of the Drawing.

Figure 1 shews a longitudinal section; Figure 2 a plan; and Figure 3 an end view of a boiler furnace arranged according to my improvements. *a*, *a*, is a steam pipe conveying steam from the boiler *b* to the fire bridge *c*, in doing which it is passed in coils, as shewn by dotted lines, within the casing *d* of fire clay or porcelain, by which such pipes, when of metal, are protected from rapid destruction, consequent upon the exposure to the direct action of the fire in the furnace, whilst they are subjected to intense heat, to facilitate the superheating of the steam passing therethrough. Steam thus heated may be conducted otherwise than to the fire bridge, in order to its thence being caused to operate upon the products of combustion in the furnace. The pipes conveying the steam within the fire, in order to its being superheated, may be formed of fire clay or porcelain in place of metal.

As shown by Figures 1, 2, and 3, the steam passes from the steam pipes *a* into the hollow bridge *c* of porcelain or fire clay, and thence in jets through openings c^1 formed therein to the fire; but the pipes *a* may open into a metal pipe *d*, laid within the fire bridge *c*, as shown by Figure 4; in which case the pipe *d* will be perforated with numerous small holes to admit the steam to pass therefrom in numerous jets upon the flame and products of combustion. The pipes *a* and *d* may be composed of metal (preferring for this purpose iron or copper), or, as I prefer it, of metal covered with porcelain or fire clay.

Figure 5 shows two sectional views of the fire box of a locomotive engine, with my improvements applied thereto. In this case the same letters indicate the like parts wherever they occur. And I find it important that the jets of steam be caused to act upon the flame produced just above the fuel, and in a direction to meet the flame therefrom in its passage to the flue; and it is the

so arranging the jets which constitutes an important feature of the improvements.

Having thus described the nature of the said Invention, I would have it understood, that I do not confine myself to the precise details, shewn and described, as these may be varied; but what I do claim is, the arranging pipes conveying steam to be used in facilitating the consumption or prevention of smoke, that the same may, in passing within the furnace, be enclosed in fire clay or porcelain.

Secondly, I claim the so arranging the parts of apparatus in connection with furnaces; when superheated steam is employed to facilitate the consumption or prevention of smoke, that the jets of steam may act upon the flame produced just above the fuel, and in a direction to meet the flame in its passage to the flue.

In witness whereof, I, the said Edouard Besnier de la Pontonerie, have hereunto set my hand and seal, this Twelfth day of December, One thousand eight hundred and fifty-seven.

EDOUARD BESNIER DE LA PONTONERIE. (L.S.)

Witness,

WILLIAM BROOKES, Patent Agent,
73, Chancery Lane, London.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1857.

A. D. 1857. JUNE. 24. Nº 1775.
DE LA PONTONERIE'S SPECIFICATION

FIG. 5.

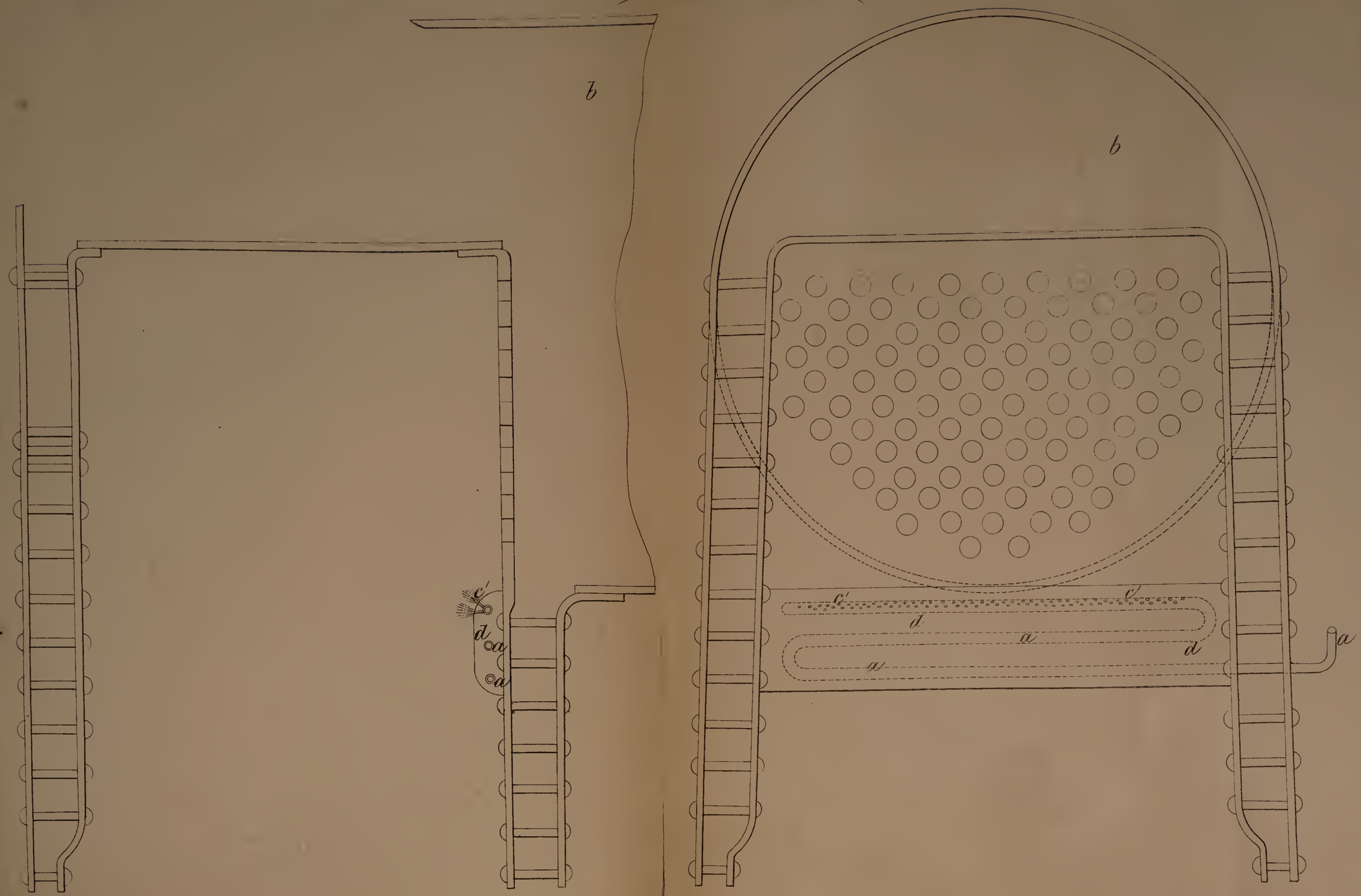


FIG. 1.

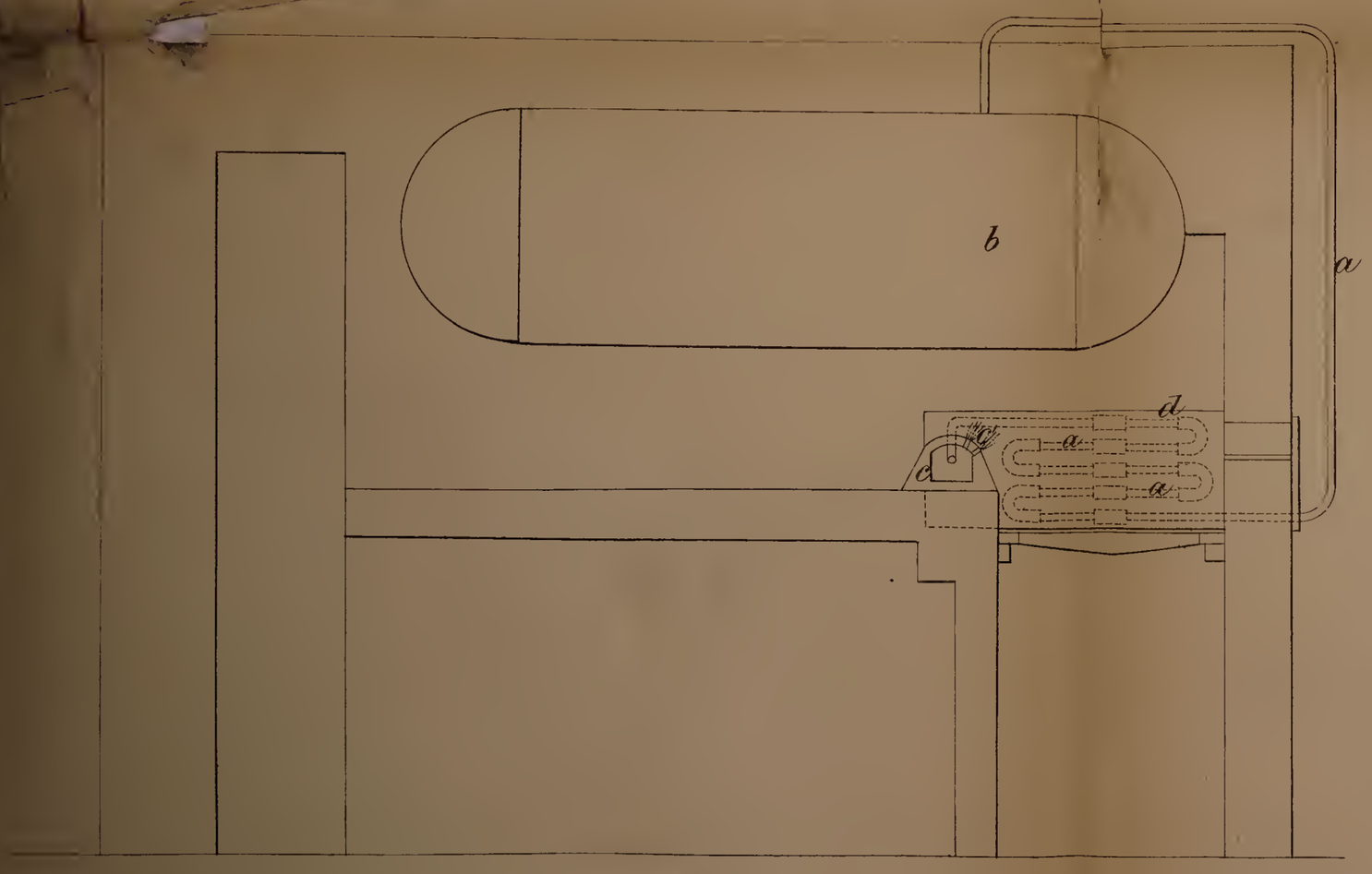


FIG. 3.

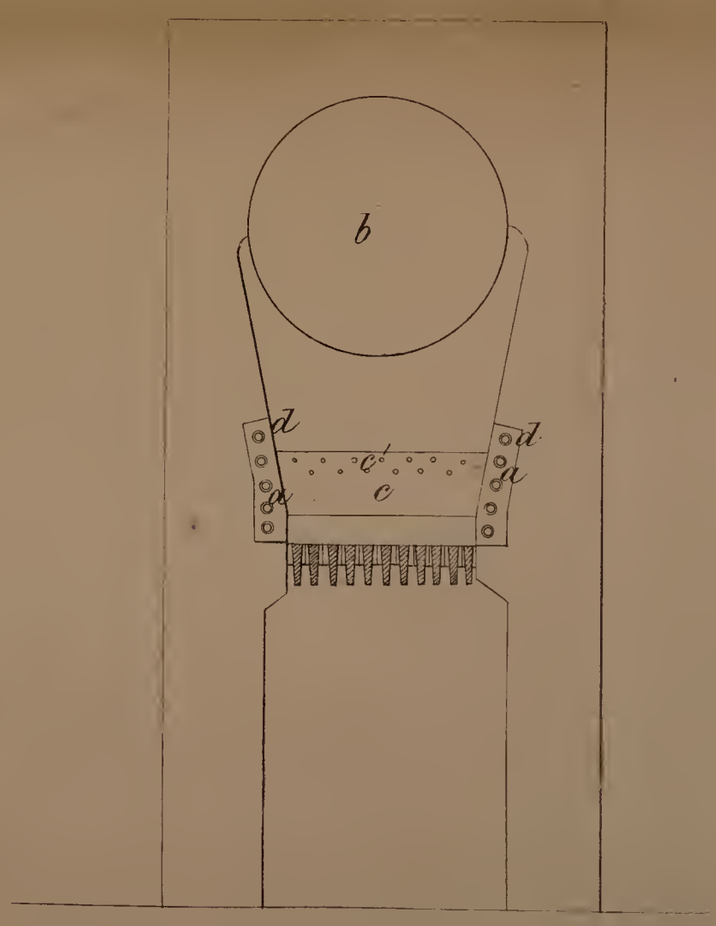


FIG. 2.

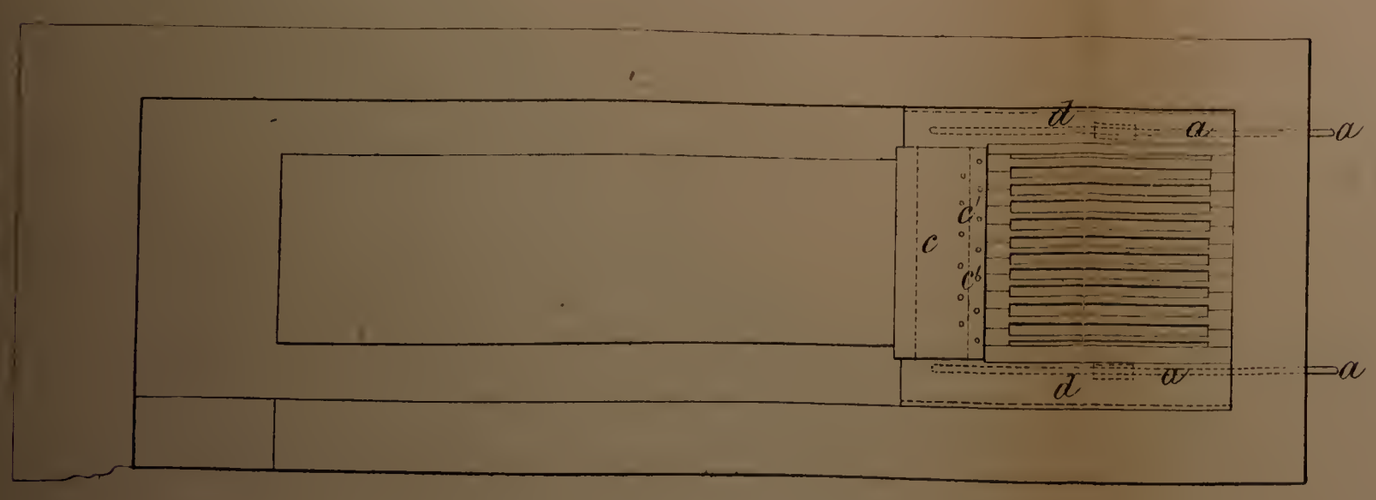
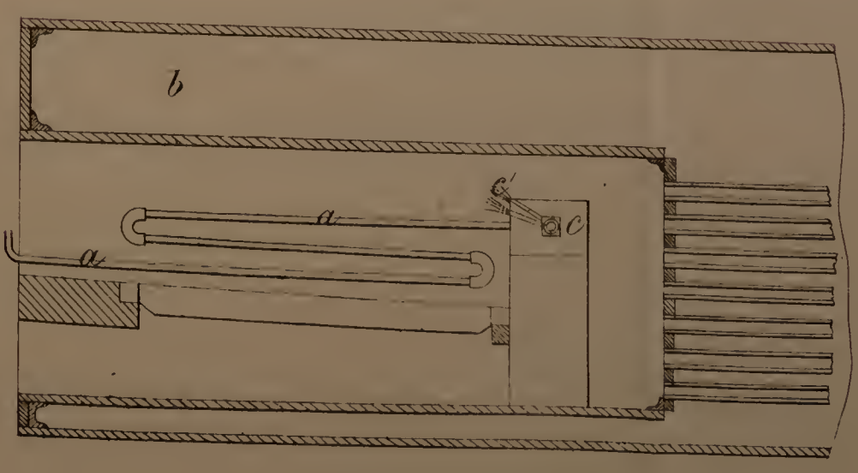


FIG. 4.



The filed drawing is partly colored

Drawn on Stone by Melby & Sons

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